

REMARKS

In this request for reconsideration, no claims have been amended, cancelled, or newly added. Therefore, claims 1, 3, 4, 6-8, 10-12, 15, and 17-22 remain pending. In view of the following comments, reconsideration and allowance of all the claims pending in the application are respectfully requested.

In the Office Action, claims 1, 3, 4, and 6 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,489,888 to Jagiella et al. (“Jagiella”), in view of U.S. Patent No. 5,315,259 to Jostlein (“Jostlein”), in view of U.S. Patent No. 5,444,597 to Blake et al. (“Blake”), and further in view of U.S. Patent No. 5,557,215 to Saeki et al. (“Saeki”). Applicant respectfully traverses this rejection.

Claim 1 recites a detection assembly to capacitively detect an object on a support structure. As recited by claim 1, the detection assembly includes “at least one electrode being arranged adjacent said support structure; at least one cable having a first conductor and a second conductor, said first conductor having a first end connected to said at least one electrode; a first AC source connected to a second end of the first conductor; a controller structured to control said first AC source to provide a first AC voltage with a first amplitude and a first phase via said first conductor to said at least one electrode to capacitively detect said object on said support structure; a second AC source connected to said second conductor, wherein said controller is configured to control said second AC source to provide a second AC voltage to said second conductor, said second AC voltage having a second amplitude and a second phase, which are substantially equal to said first amplitude and said first phase, respectively; and a DC source, wherein the DC source is in series with said first AC source to provide a DC voltage to said at least one electrode to provide a clamping force on said object.” Applicant respectfully submits that a *prima facie* case of obviousness has not been made in the Office Action because the combination of references does not disclose, teach, or suggest all of the features of claim 1, there is no motivation to combine the references in the manner suggested by the Office Action, and there is no reasonable expectation of success.

Jagiella discloses a sensor system configured to contactlessly measure the distance between a sensor and a workpiece, and to determine if the electrical connection between a control unit and the sensor has been interrupted. *See* Jagiella: Abstract. Specifically, Jagiella discloses joining the sensor to a machine tool and using the measured distance between the

sensor and the workpiece to position the machine tool relative to the workpiece. If the cable connected to the sensor separates from the control unit, the sensor may run against the workpiece, and damage may result. Jagiella discloses that if the cable connected to the sensor separates from the control unit, the control unit will detect a reduced measuring capacitance, and cause the control unit to believe that the distance between the sensor and the workpiece is much greater than in actuality.

The Office Action concedes that Jagiella does not disclose all of the features of claim 1 and relies on Jostlein to cure, in part, the admitted deficiencies of Jagiella. Jostlein discloses a non-contact capacitive probe for dimensional gauging. For example, Jostlein discloses that the capacitance of the probe is indicative of the distance between the probe and a workpiece, and that a coordinate measurement machine can use the probe to obtain dimensional information of the workpiece. *See* Jostlein: Abstract and col. 1, lines 12-21.

Page 3 of the Office Action alleges that Jostlein describes “that it is well known in the art of capacitive sensing to apply a second AC voltage to an outer conductor similar in magnitude and phase as a first AC voltage being supplied to an inner conductor,” and that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jagiella to include the second AC voltage as taught by Jostlein for the purpose of eliminating the effect of stray capacitance on probe measurements.” However, Jagiella already has a conductor 8 for shielding the sensor element 2. Thus, there is reason to modify Jagiella to include the second AC voltage source of Jostlein in order to eliminate “the effect of stray capacitance on probe measurements,” as alleged in the Office Action. Moreover, the outer conductor 55 of Jostlein carries only AC voltage. In contrast, the outer conductor 8 of Jagiella carries a DC voltage. *See* Jagiella: col. 7, lines 21-40. Neither Jagiella nor Jostlein disclose that it is desirable or even possible to modify Jagiella such that the outer conductor 8 of Jagiella carries a DC voltage (as described in Jagiella), and an AC voltage (as described in Jostlein), without destroying the operation of the electrical circuit of the sensor system of Jagiella. Accordingly, the Office Action has not established a *prima facie* case of obviousness for at least the reason that the Office Action has not provided a legally proper reason why one of ordinary skill in the art would combine the relied upon portions of Jagiella and Jostlein.

The Office Action further relies on Blake to cure, in part, the admitted deficiencies of Jagiella. Blake discloses a wafer position and clamp sensor. In particular, Blake discloses that a circuit monitors capacitance between two electrodes within a wafer support. For

example, with no wafer on the support, the capacitance falls in one range, with the wafer in place but not clamped, the capacitance falls in a second range, and with the wafer held in place by an electrostatic attraction, the capacitance falls in a third range. *See* Blake: Abstract. Accordingly, the capacitance sense circuit 114 of Blake determines if a wafer is on a support, and if the wafer is clamped. The capacitance sense circuit 114 does not measure the distance, for example, between the electrodes 22, 24 and wafer 12. To the extent that Blake describes determining a wafer position at all, Blake does not disclose that the capacitance sense circuit 114 measures the position of the wafer.

Moreover, Applicant respectfully submits that modifying the sensor system of Jagiella to include electrodes 22, 24 of Blake would make the sensor system of Jagiella unsatisfactory for its intended purpose. For example the sensor element 2 of Jagiella is joined to a machine tool, and the sensor system measures the distance between the sensor (and machine tool) and the workpiece as the machine tool is moved relative to the workpiece. There is no reason to modify the machine tool of Jagiella to determine whether there is a wafer clamped to the machine tool. Moreover, if the sensor element 2 of Jagiella was somehow incorporated into the wafer support of Blake, the sensor element 2 would not be able to detect the distance between the wafer and the sensor element 2, because the sensor element 2 would now be fixed relative to the wafer. *See, e.g.*, MPEP §2143.01(V) (“If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” Citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)). It simply makes no sense to combine Blake with Jagiella in the manner proposed by the Office Action.

Accordingly, the Office Action has not established a *prima facie* case of obviousness for at least the reason that the Office Action has not provided a legally proper reason why one of ordinary skill in the art would combine the relied upon portions of Jagiella and Blake.

The Office Action further relies on Saeki to cure, in part, the admitted deficiencies of Jagiella. Saeki discloses an electrostatic chuck for holding a semiconductor wafer capable of measuring a self-bias based on a leak current between an object and the electrostatic chuck when the object is subjected to a plasma process. *See* Saeki: Abstract. Jagiella, however, does not disclose, teach, or remotely suggest the processing of semiconductor wafers or using an electrostatic chuck. The Office Action has provided no evidence to support the assertion that “it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Jagiella to include the DC source on the wafer as taught by Saeki.”

Furthermore, Jagiella does not disclose subjecting a workpiece to plasma processing (e.g., as described in Saeki). As a result, it would not have been obvious to include the DC source on a wafer as taught by Saeki for the purpose of securing a wafer on a platform for self-bias voltage measurements, as alleged in the Office Action. Applicant respectfully submits that the Office Action is using impermissible hindsight with Applicant's disclosure in mind in trying to modify Jagiella to include the teaching of Saeki. *See* MPEP §2142 (“impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art”).

In addition, Applicant respectfully submits that Jagiella cannot be modified to incorporate the teaching of Saeki without destroying the sensor 1 of Jagiella. In particular, Saeki states that

a constant direct current voltage is applied from the variable direct current power source 46 to the conductive film 36 of the electrostatic chuck sheet 30, so as to achieve the polarization on the dielectric film 32 by the DC voltage. Consequently, the positive charge is guided onto the upper surface of the conductive film 36, whereas the negative charge is guided to the rear surface of the semiconductor wafer W. Therefore, the semiconductor wafer W is chucked on the stage 18 by means of the Coulomb's force between the positive and negative charges.

Saeki: col. 6, ln. 63 – col. 7, ln. 5. Accordingly, the electrostatic force is generated by electrical attraction between the electrically charged wafer and chuck caused by a voltage difference between the wafer and chuck; and further, that little to no current is caused to flow by the DC source 44 through the wafer and chuck. In contrast, for example, Jagiella discloses that DC voltage 103 creates a complete circuit which causes current to flow through interrogation resistance 13. *See* Jagiella: col. 7, lines 22-40. Accordingly, Applicant respectfully submits that the DC clamping circuit of Saeki would destroy the alarm signal of Jagiella which indicates if the sensor 1 and control unit have become separated, because the DC clamping circuit Saeki would prevent an interrogating DC current to be generated by the interrogating DC voltage. MPEP §2143.01(V).

Furthermore, page 4 of the Office Action alleges that Saeki discloses a DC source 46 that applies a DC voltage to provide a clamping force to a wafer. However, the relied upon portions of Saeki do not describe that the DC source 46 is in series with an AC source. In particular, Fig. 1 of Saeki shows that DC source 46 is connected between ground and feeder rod 40 with no AC source in series with the DC source 46. The Office Action does not

provide any citations to Jagiella or Saeki to substantiate the assertion that “it would have been obvious that the DC source and AC source would have to be in series for the purpose of providing a DC offset since if the configuration was in parallel, no DC offset would be present.” The relied upon portions of Jagiella or Saeki do not describe the desirability of providing a DC offset. The Office Action does not provide documentary evidence that the asserted facts are old and well known. Accordingly, Applicant requests documentary evidence that it is old and well known in the art to provide a detection assembly to capacitively detect an object on a support structure comprising, *inter alia*, “a DC source, wherein the DC source is in series with said first AC source to provide a DC voltage to said at least one electrode to provide a clamping force on said object,” as recited in claim 1.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no teaching, suggestion, or reason to combine the relied upon portions of Jagiella, Jostlein, Blake, and Saeki; and (2) the relied upon portion of Jagiella, Jostlein, Blake, and Saeki, even if combined, do not disclose, teach, or render obvious each and every aspect of claim 1, the rejection of claim 1 should be withdrawn. Claims 3, 4, and 6 depend from claim 1 and therefore are patentable over the relied upon portions of Jagiella, Jostlein, Blake, and Saeki for the reasons noted above with respect to claim 1, as well as for the aspects they recite individually.

Claims 7, 8, and 19 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, in view of Blake, in view of U.S. Patent No. 4,654,581 to Neukermans et al. (“Neukermans”), in view of U.S. Published Application No. 2002/0008954 to Leeser (“Leeser”), and further in view of U.S. Patent No. 4,870,452 to Tanimoto et al. (“Tanimoto”). Applicant respectfully traverses this rejection.

Claim 7 recites a lithographic apparatus that includes, *inter alia*, “a detection assembly configured to capacitively detect an object on a support structure.” As recited by claim 7, the detection assembly includes “at least one electrode being arranged adjacent said support structure; at least one cable having a first conductor and a second conductor, said first conductor having a first end connected to said at least one electrode; a first AC source connected to a second end of the first conductor; a controller structured to control said first AC source to provide a first AC voltage with a first amplitude and a first phase via said first conductor to said at least one electrode to capacitively detect said object on said support structure; [and] a second AC source connected to said second conductor, wherein said

controller is configured to control said second AC source to provide a second AC voltage to said second conductor, said second AC voltage having a second amplitude and a second phase, which are substantially equal to said first amplitude and said first phase, respectively.” Applicant respectfully submits that a *prima facie* case of obviousness has not been made by the Office Action because the combination of references does not disclose, teach, or suggest all of the features of claim 7, there is no motivation to combine the references in the manner suggested by the Office Action, and there is no reasonable expectation of success.

As discussed above, there is (1) no teaching, suggestion, or reason to combine the relied upon portions of Jagiella, Jostlein, and Blake, and (2) the relied upon portion of Jagiella, Jostlein, and Blake, even if combined, do not disclose, teach, or render obvious a detection assembly to capacitively detect an object on a support structure comprising, *inter alia*, “at least one electrode being arranged adjacent said support structure; at least one cable having a first conductor and a second conductor, said first conductor having a first end connected to said at least one electrode; a first AC source connected to a second end of the first conductor; a controller structured to control said first AC source to provide a first AC voltage with a first amplitude and a first phase via said first conductor to said at least one electrode to capacitively detect said object on said support structure; [and] a second AC source connected to said second conductor, wherein said controller is configured to control said second AC source to provide a second AC voltage to said second conductor, said second AC voltage having a second amplitude and a second phase, which are substantially equal to said first amplitude and said first phase, respectively.”

As further recited by claim 7, the lithographic apparatus includes, *inter alia*, “an illumination system constructed to provide a beam of radiation” and “an actuator constructed to move said support structure, said actuator being connected to said controller, said controller being structured to determine a clamping force on said object and to provide said actuator with a maximum value for the acceleration on said object based on the determined clamping force.”

Page 5 of the Office Action concedes that Jagiella does not disclose, *inter alia*, an illumination system constructed to provide a beam of radiation, or controlling actuators to move when clamping force is above a predetermined value, and determining a clamping force to provide a max value for acceleration. Instead, the Office Action relies on Neukermans for teaching a lithographic apparatus that includes an illumination device for providing a beam of radiation and ridge/fingers to provide alignment.

Applicant respectfully submits that one of ordinary skill in the art would not combine the teachings of Neukermans with Jagiella, because Jagiella and Neukermans are non-analogous art and are directed to different types of components and technology. As discussed above, Jagiella discloses a sensor system configured to contactlessly measure the distance between a sensor and a workpiece, and to determine if a cable connected to the sensor has separated from a control unit. In contrast, Neukermans discloses a capacitive mask aligner for a wafer for photolithography of a semiconductor chip. Accordingly, Jagiella is not within the same field of endeavor as Neukermans. Furthermore, even assuming *arguendo* that Jagiella and Neukermans were within the same field of endeavor, Applicant respectfully submits that it would not have been obvious to “include the illumination system of Neukermans for the purpose of properly detecting and aligning a mask and a wafer during photolithography,” as alleged in the Office Action. In particular, as discussed above, Jagiella does not even disclose or remotely suggest processing semiconductor wafers. Accordingly, there is not reason to modify Jagiella to include an illumination system for illuminating semiconductor wafers, or to detect and align a mask and a wafer during photolithography. Applicant respectfully submits that the Office Action is using impermissible hindsight with Applicant's disclosure in mind in trying to modify Jagiella to include the teaching of Neukermans. *See* MPEP §2142 (“impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art”).

The Office Action also relies on Leeser to cure, in part, the admitted deficiencies of Jagiella. Although Leeser provides a necessary chucking voltage for an acceleration in a given application, Leeser does not disclose, teach, or suggest providing a maximum value for the acceleration based on the determined clamping force. *See* Leeser: paragraph [0012]. However, there is no reason to add such features to Jagiella, as Jagiella is not directed to the processing of semiconductor wafers, as discussed above.

The Office Action also relies on Tanimoto to cure, in part, the admitted deficiencies of Jagiella. Although Tanimoto generally describes a projection exposure apparatus, the relied upon portions of Tanimoto do not address the deficiencies of Jagiella, Jostlein, Blake, Neukermans, and Leeser discussed above. Moreover, Applicant respectfully submits that one of ordinary skill in the art would not combine features of a projection exposure apparatus with the sensor of Jagiella as asserted by the Office Action, as they are directed to different fields of endeavor.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no teaching, suggestion, or reason to combine the relied upon portions of Jagiella, Jostlein, Blake, Neukermans, Leeser, and Tanimoto; and (2) the relied upon portion of Jagiella, Jostlein, Blake, Neukermans, Leeser, and Tanimoto, even if combined, do not disclose, teach, or render obvious each and every aspect of claim 7, the rejection of claim 7 should be withdrawn. Claims 8, 18, and 19 depend from claim 7 and therefore are patentable over the relied upon portions of Jagiella, Jostlein, Blake, Neukermans, Leeser, and Tanimoto for the reasons noted above with respect to claim 7, as well as for the aspects they recite individually. Accordingly, Applicant respectfully requests that the rejection of claims 8 and 19 be withdrawn.

Claims 10, 12, and 17 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, in view of Blake, in view of Saeki, in view of Leeser, and further in view of U.S. Published Application No. 2003/0072122 to Ishida ("Ishida"). Applicant respectfully traverses this rejection.

Claim 10 recites a method for capacitively detecting an object on a support structure that includes, *inter alia*, "controlling a DC source to provide a DC voltage to at least one electrode to provide a clamping force on an object; controlling an AC source to provide a first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode to capacitively detect the object; controlling a second AC source to provide a second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, which are substantially equal to the first amplitude and first phase, respectively; ...deriving from the clamping force a maximum acceleration of the support structure and the object during a movement which causes movement of the support structure relative to the object; and moving the support structure and the object, wherein an acceleration of the support structure and the object is less than the maximum acceleration."

Claim 17 recites a method for capacitively detecting an object on a support structure that includes, *inter alia*, "providing a DC voltage to at least one electrode to provide a clamping force on an object; providing a first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode to capacitively detect the object; providing a second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, which are substantially equal to the first amplitude and first phase, respectively; determining the clamping force of the support structure on the object



by determining the difference in capacitance between the support structure with the object present on the support structure and the support structure without the object present on the support structure; comparing the clamping force to a minimum clamping force suitable to hold the object on the support structure during movement of the support structure; and moving the support structure and the object together, when the determined clamping force is more than or equal to the minimum clamping force unless the determined clamping force is less than the minimum clamping force.”

Applicant respectfully submits that a *prima facie* case of obviousness has not been made for claims 10 and 17, because the combination of references does not disclose, teach, or suggest all of the features of claims 10 and 17, there is no motivation to combine the references in the manner suggested by the Office Action, and there is no reasonable expectation of success.

Jagiella, Jostlein, Blake, Saeki, and Leeser are discussed above. The Office Action further relies on Ishida to cure, in part, the admitted deficiencies of Jagiella. However, the relied upon portion of Ishida discloses that given the acceleration of the chuck and substrate, the necessary chucking force may be calculated. *See* Ishida [0044]. Accordingly, Ishida discloses to provide a necessary chucking voltage for an acceleration in a given application, rather than providing a maximum value for the acceleration based on the determined clamping force, as recited in claim 10.

Moreover, Applicant respectfully submits that the relied upon portion of Ishida does not disclose, teach, or suggest “comparing the clamping force to a minimum clamping force suitable to hold the object on the support structure during movement of the support structure; and moving the support structure and the object together, when the determined clamping force is more than or equal to the minimum clamping force unless the determined clamping force is less than the minimum clamping force,” as recited in claim 17.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no reason for one of ordinary skill in the art to combine the relied upon portions of Jagiella, Jostlein, Blake, Saeki, Leeser, and Ishida; and (2) the relied upon portion of Jagiella, Jostlein, Blake, Saeki, Leeser, and Ishida, even if combined, do not disclose, teach, or render obvious each and every aspect of claims 10 and 17, the rejection of claims 10 and 17 should be withdrawn. Claims 11 and 12 depend from claim 10 and therefore are patentable over the relied upon portions of Jagiella, Jostlein, Blake, Saeki, Leeser, and Ishida for the reasons noted above with respect to claim 10, as well as for the aspects they recite

individually. Accordingly, Applicant respectfully requests that the rejection of claim 12 be withdrawn.

Claim 11 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, in view of Blake, in view of Saeki, in view of Leeser, in view of Ishida, and further in view of U.S. Patent No. 5,670,066 to Barnes et al. ("Barnes"). Applicant respectfully traverses this rejection.

Claim 11 depends from claim 10 and therefore is allowable over the relied upon portions of Jagiella, Jostlein, Blake, Saeki, Leeser, and Ishida for the reasons noted above with respect to claim 10, as well as for the additional advantageous features it recites.

Barnes does not make up for the deficiencies of Jagiella, Jostlein, Blake, Saeki, Leeser, and Ishida as set forth above with regard to claim 10. For example, Barnes discloses an electrostatic chuck in a vacuum plasma processing chamber. *See Barnes: Abstract.* Whether or not a workpiece is properly positioned on the electrostatic chuck is determined by measuring the capacitance across a pair of electrodes of the chuck. *See Barnes: Abstract.* The capacitance across the pair of electrodes is made without the workpiece being positioned on the chuck, and then with the workpiece on the chuck. *See Barnes: col. 4, lines 32-36.* If the difference between the two measured values is in a predetermined ranges, the workpiece is assumed to be properly positioned and ready for clamping. *See Barnes: col. 4, lines 36-43.*

Combining Barnes with Jagiella would make the sensor system of Jagiella unsatisfactory for its intended purpose. For example, as discussed above, the sensor element 2 of Jagiella is joined to a machine tool, and the sensor system measures the distance between the sensor (and machine tool) and the workpiece as the machine tool is moved relative to the workpiece. There is no reason to modify the machine tool of Jagiella to determine whether there is a wafer properly positioned on the machine tool. Moreover, if the sensor element 2 of Jagiella was somehow incorporated into the chuck of Barnes, the sensor element 2 would not be able to detect the distance between the wafer and the sensor element 2, because the sensor element 2 would now be fixed relative to the wafer. MPEP §2143.01(V). It simply makes no sense to combine Barnes with Jagiella in the manner proposed by the Office Action.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no reason for one of ordinary skill in the art to combine the relied upon portions of Jagiella, Jostlein, Blake, Saeki, Leeser, Ishida, and Barnes; and (2) the relied upon

portion of Jagiella, Jostlein, Blake, Saeki, Leeser, Ishida, and Barnes, even if combined, do not disclose, teach, or render obvious each and every aspect of claim 11, the rejection of claim 11 should be withdrawn.

Claim 18 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, in view of Neukermans, in view of Leeser, in view of Tanimoto, and further in view of Saeki. Applicant respectfully traverses this rejection.

Claim 18 depends from claim 7 and therefore is allowable over the relied upon portions of Jagiella, Jostlein, Blake, Neukermans, Leeser, and Tanimoto for the reasons noted above with respect to claim 7, as well as for the features it recites individually.

Saeki does not make up for the deficiencies of Jagiella, Jostlein, Blake, Neukermans, Leeser, and Tanimoto as set forth above with regard to claim 7. For example, as discussed above, Saeki discloses an electrostatic chuck for holding a semiconductor wafer capable of measuring a self-bias based on a leak current between an object and the electrostatic chuck when the object is subjected to a plasma process. *See* Saeki: Abstract. As also discussed above, Jagiella and Jostlein do not disclose, teach, or remotely suggest the processing of semiconductor wafers or using an electrostatic chuck.

The Office Action has provided no evidence to support the assertion that “it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Jagiella, Jostlein, Blake, Neukermans, Leeser, and Tanimoto to include the DC source on the wafer as taught by Saeki.” Furthermore, Jagiella and Jostlein do not disclose, teach, or suggest subjecting a workpiece to plasma processing (e.g., as described in Saeki). As a result, it would not have been obvious to include the DC source on a wafer as taught by Saeki for the purpose of securing a wafer on a platform for self-bias voltage measurements, as alleged in the Office Action. Applicant respectfully submits that the Office Action is using impermissible hindsight with Applicant's disclosure in mind in trying to modify Jagiella to include the teaching of Saeki. *See* MPEP §2142 (“impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art”).

In addition, Applicant respectfully submits that Jagiella cannot be modified to incorporate the teaching of Saeki without destroying the sensor 1 of Jagiella, as discussed above.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no reason for one of ordinary skill in the art to combine the relied upon portions of Jagiella, Jostlein, Blake, Neukermans, Leeser, Tanimoto, and Saeki; and (2) the relied upon portion of Jagiella, Jostlein, Blake, Neukermans, Leeser, Tanimoto, and Saeki, even if combined, do not disclose, teach, or render obvious each and every aspect of claim 18, the rejection of claim 18 should be withdrawn.

Claim 15 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, and further in view of Saeki. Applicant respectfully traverses this rejection.

Claim 15 recites a computer-readable medium encoded with a program, said program comprising instructions to perform a method, the method comprising, *inter alia*, “controlling a DC source to provide a DC voltage to at least one electrode to provide a clamping force on an object; controlling an AC source to provide a first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode to capacitively detect the object, wherein said AC source is in series with said DC source; and controlling a second AC source to provide a second AC voltage to a second conductor, the second AC voltage having a second amplitude and a second phase, which are substantially equal to the first amplitude and first phase, respectively.” Applicant respectfully submits that the combination of Jagiella, Jostlein, and Saeki does not disclose, teach, or suggest all of the features of claim 15.

The Office Action concedes that “Jagiella does not disclose applying a DC source in series with the AC source to provide a clamping force, or providing a second AC voltage to a second conductor having an amplitude and phase substantially the same as the first AC voltage.” *See* Office Action at page 12, lines 1-3.

The Office Action relies on Jostlein to cure, in part, the admitted deficiencies of Jagiella. As discussed above, Jostlein describes a non-contact capacitive probe for dimensional gauging, and Jagiella already has a conductor 8 for shielding the sensor element 2. Thus, there is no reason to modify Jagiella to include the teaching of Jostlein in order to eliminate “the effect of stray capacitance on probe measurements,” as alleged in the Office Action. In view of the foregoing, Applicant respectfully submits that the Office Action has not established a *prima facie* case of obviousness for at least the reason that the Office Action has not provided a legally proper reason why one of ordinary skill in the art would combine the relied upon portions of Jagiella and Jostlein.

The Office Action further relies on Saeki to cure, in part, the admitted deficiencies of Jagiella. As discussed above, Saeki discloses an electrostatic chuck for holding a semiconductor wafer capable of measuring a self-bias based on a leak current between an object and the electrostatic chuck when the object is subjected to a plasma process. *See* Saeki: Abstract.

As discussed above, Jagiella does not disclose, teach or suggest the processing of semiconductor wafers or using an electrostatic chuck. The Office Action has provided no evidence to support the assertion that “it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Jagiella to include the DC source on the wafer as taught by Saeki.” Applicant respectfully submits that the Office Action is using impermissible hindsight with Applicant's disclosure in mind in trying to modify Jagiella to include the teaching of Saeki. MPEP §2142.

In addition, Applicant respectfully submits that one of ordinary skill in the art would not modify Jagiella with the teachings of Saeki, because such a modification of Jagiella would destroy the sensor 1 of Jagiella, as discussed above. As such one of ordinary skill in the art would not modify Jagiella with the DC clamping circuit of Saeki. MPEP §2143.01(V).

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no reason for one of ordinary skill in the art to combine the relied upon portions of Jagiella, Jostlein, and Saeki; and (2) the relied upon portion of Jagiella, Jostlein, and Saeki, even if combined, do not disclose, teach, or render obvious each and every aspect of claim 15, Applicant respectfully requests that the rejection of claim 15 be withdrawn. Claims 20-22 depend from claim 15 and therefore are patentable over the relied upon portions of Jagiella, Jostlein, and Saeki for the reasons noted above with respect to claim 15, as well as for the additional advantageous features that they recite.

Claim 20 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, in view of Saeki, and further in view of Barnes. Applicant respectfully traverses this rejection.

Claim 20 depends from claim 15 and therefore is allowable over the relied upon portions of Jagiella, Jostlein, Saeki, and Barnes for the reasons noted above with respect to claim 15, as well as for the features it recites individually.

Barnes does not make up for the deficiencies of Jagiella, Jostlein, and Saeki, as set forth above with regard to claim 15. Barnes is discussed above. As discussed above, there is no reason to modify the machine tool of Jagiella to determine whether there is a wafer properly positioned on the machine tool. Moreover, if the sensor element 2 of Jagiella was somehow incorporated into the chuck of Barnes, the sensor element 2 would not be able to detect the distance between the wafer and the sensor element 2, because the sensor element 2 would now be fixed relative to the wafer. MPEP §2143.01(V). It simply makes no sense to combine Barnes with Jagiella in the manner proposed by the Office Action.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no reason for one of ordinary skill in the art to combine the relied upon portions of Jagiella, Jostlein, Saeki, and Barnes; and (2) the relied upon portion of Jagiella, Jostlein, Saeki, and Barnes, even if combined, do not disclose, teach, or render obvious each and every aspect of claim 20, the rejection of claim 20 should be withdrawn.

Claims 21 and 22 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Jagiella, in view of Jostlein, in view of Saeki, in view of Leeser, and further in view of Ishida. Applicant respectfully traverses this rejection.

Claims 21 and 22 depend from claim 15 and therefore are allowable over the relied upon portions of Jagiella, Jostlein, and Saeki, for the reasons noted above with respect to claim 15, as well as for the features they recite individually.

Leeser and Ishida do not make up for the deficiencies of Jagiella, Jostlein, and Saeki, as set forth above with regard to claim 15. Leeser and Ishida are discussed above. Neither Leeser nor Ishida discloses, teaches, or suggests a computer-readable medium encoded with a program, the program comprising instructions to perform a method, the method comprising, *inter alia*, “controlling an AC source to provide a first AC voltage with a first amplitude and a first phase via a first conductor to the at least one electrode to capacitively detect the object, wherein said AC source is in series with said DC source,” in combination with all other features recited in claim 15.

For at least the reason that no *prima facie* case of obviousness has been established because (1) there is no reason for one of ordinary skill in the art to combine the relied upon portions of Jagiella, Jostlein, Saeki, Leeser, and Ishida; and (2) the relied upon portion of Jagiella, Jostlein, Saeki, Leeser, and Ishida, even if combined, do not disclose, teach, or

render obvious each and every aspect of claims 21 and 22, Applicant respectfully requests that the rejection of claims 21 and 22 be withdrawn.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP



EMILY T. BELL  
Reg. No. 47,418  
Tel. No. 703.770.7661  
Fax No. 703.905.2500

Date: June 4, 2008  
P.O. Box 10500  
McLean, VA 22102  
703.770.7900